

Radio

Wire Stretched Under Ground Works Well As Radio Antenna

By PAUL E. GODLEY,
America's Foremost Radio Authority

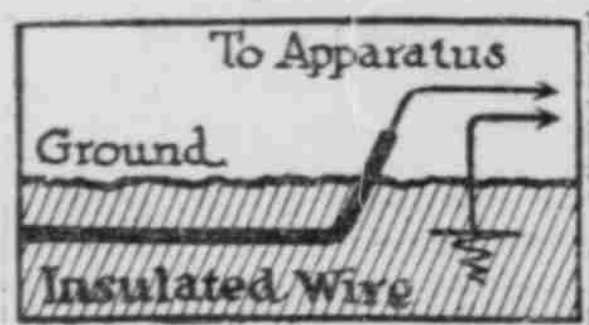
Radio reception on an underground antenna works successfully. Experiments in this type of aerial were instituted during the war in an effort to reduce static interference.



At one time, the secret service discovered a German plan to cut all cable connections between the United States and Europe. Trans-oceanic radio became all-important. Several of the cables were cut. The heavy traffic which radio was then called upon to carry was subjected to great delay because of atmospheric disturbances. Every competent agency in this country made effort at this time to solve the static riddle.

It was found that a long wire di-

rected toward the station from which it was desired to receive would pick up great signal energies with considerably better signal to static ratio than the ordinary type of tuned antenna. This wire could not only be laid directly upon the ground, provided that it was insulated, but it could even be buried in the ground at a depth of several



THE GROUND "AERIAL"

inches without greatly reducing the strength of the signals. These experiments were carried further and the wire placed under both fresh and salt water. Here attempts were made to receive signals from high-powered European stations with the wire laid at different depths in the water.

The best results were obtained in fresh or only slightly brackish water. When the submersion was too great in the salt water, the signals fell off to a very considerable degree.

Even for the reception of radio-telephone broadcasting an antenna of this type may be used. The wire should be thoroughly insulated, and may be buried a few inches or allowed to lie on the soil. The length of the wire should be six to eight hundred feet.

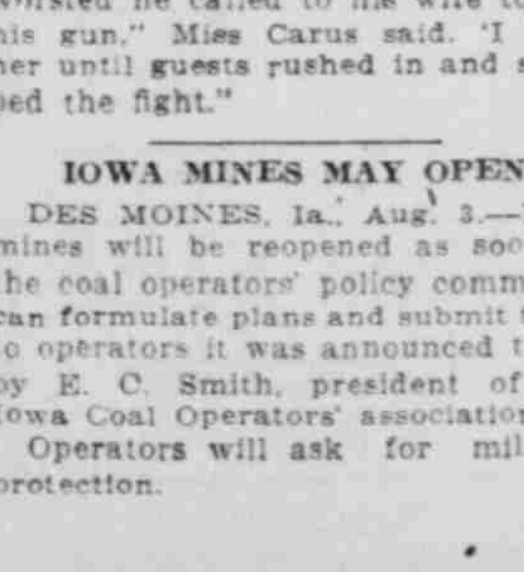
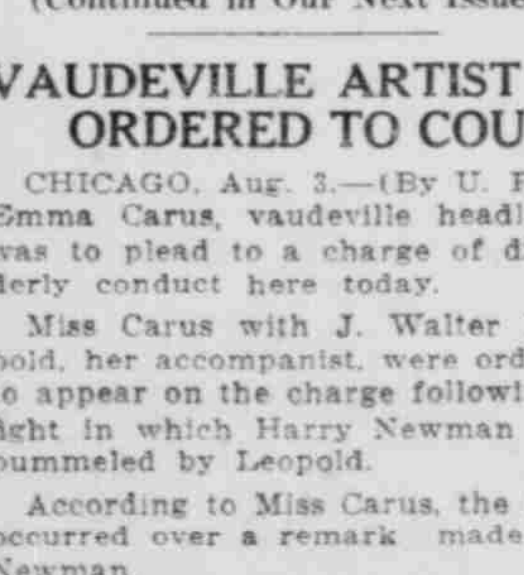
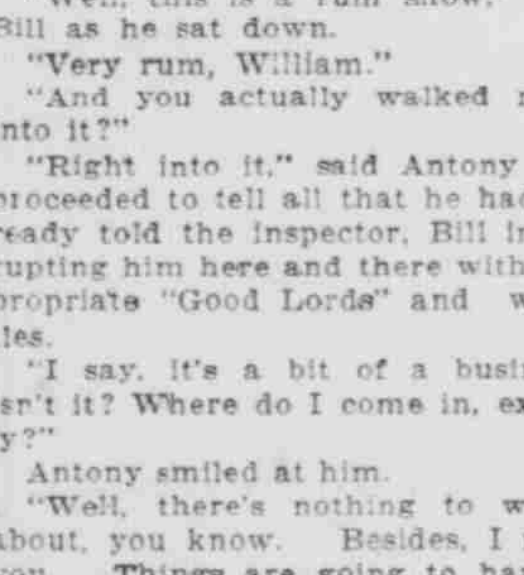
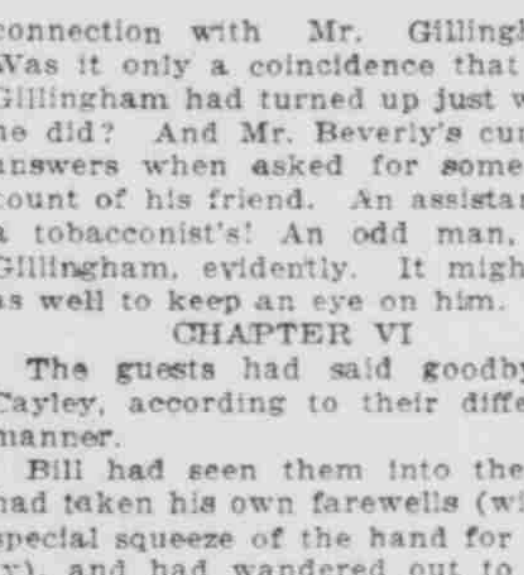
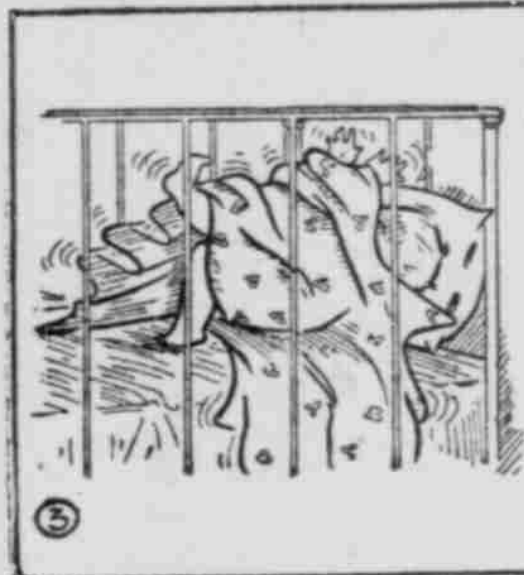
But better results will be had if this same wire is suspended 8 or 10 feet above the earth. It is to be borne in mind that best reception will come from those directions in which the plane of the wire lies.

RADIO PRIMER

AIR CORE TRANSFORMER—A transformer in which there is no metal core. Air cores are often used for transformers for high frequencies, such as those employed in radio communication. At low frequencies only small amounts of power can be conveyed from one coil to another.

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\$15

The Frances Shop

The Frances Shop

The RED HOUSE MYSTERY

by A. A. MILNE

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BEGIN HERE TODAY.

Within two minutes after ROBERT ABLETT, ne'er-do-well brother of

MARK ABLETT, bachelor proprietor of The Red House, had arrived and had been ushered into Mark's office, a shot was heard.

ANTHONY GILLINGHAM, a friend of

BILL BEVERLEY, one of Mark's guests, arrived at that moment to find Mark's companion.

MATT CAYLEY, pounding on the locked door of the office and demanding admittance. The two men entered the office by a window, and on the floor found the body of Robert, with a bullet through the head. Mark was nowhere to be found. Investigation by Inspector Birch showed that Mark had learned with considerable disgust and annoyance of the coming of Robert. Cayley refused to believe that Mark had deliberately murdered Robert.

GO ON WITH THE STORY.

CHAPTER V.
The housekeeper's room had heard something of the news by this time, and Audrey had a busy time explaining to other members of the staff exactly what she had said. The details were not quite established yet, but this much at least was certain: that Mr. Mark's brother had shot himself and spilt Mr. Mark away, and that Audrey had seen at once that he was that sort of man when she opened the door to him. Elsie had a contribution of her own to make. She had actually heard Mr. Mark in the office, threatening his brother.

"He said, I heard him say it with my own ears. It's my turn now," he said, triumphant-like.

"Well, if you think that's a threat, dear, you're very particular. I must say."

But Audrey remembered Elsie's words when she was in front of Inspector Birch. She gave her own evidence with the readiness of one who had already repeated it several times.

"Then you didn't see Mr. Mark at all?"

"No, sir; he must have come in before and gone up to his room."

"Well, I think that's all that I want to know. Now what about the other servants?"

"Elsie heard the master and Mr. Robert talking together," said Audrey eagerly. "He was saying—Mr. Mark I mean—"

I ought to have done." And she sniffed slightly.

"Come, come," said the inspector soothingly. Now then, what was it you heard? Try to remember the exact words."

Something about working in a passage, thought Elsie.

"I'm working a passage over—could that have been it?"

"That's right, sir," said Elsie eagerly. "He'd worked his passage over."

"Well."

"And then Mr. Mark said loudly—sort of triumphant-like—'It's my turn now. You wait.'"

"Triumphant-like?"

"As much as to say his chance had come."

"And that's all you heard?"

"That's all—just standing there listening, but just passing through the hall, as it might be any time."

"Yes. Well (that's really very important, Elsie. Thank you.)"

Elsie gave him a smile, and returned eagerly to the kitchen.

Meanwhile Anthony had been exploring a little on his own. There was a point which was puzzling him. He went through the hall to the front of the house and stood at the open door. He and Cayley had run round the house to the left. Surely it would have been quicker to have run round to the right? Undoubtedly they went the longest way round.

"Why?" he asked himself. "Was it to give Mark more time in which to escape? Only, in that case—why run? Also, how did Cayley know then that it was Mark who was trying to escape? If he had guessed—that one had shot the other, it was much more likely that Robert had shot Mark. Indeed, he had admitted that this was what he thought. The first thing he had said when he turned the body over was, 'Thank God! I was afraid it was Mark.' But why should he want to give Robert time in which to get away? And again—why run, if he did want to give him time?"

Anthony went out of the house again to the lawn at the back, and sat down on a bench in view of the office windows.

"Now then," he said, "let's go through Cayley's mind carefully, and see what we get."

Cayley had been in the hall when Robert was shown into the office. The servant goes off to look for Mark, and Cayley goes on with his book. Mark comes down the stairs, and Cayley is to stand by in case he is wanted, and goes to meet his brother. What does Cayley expect?

Possibly that he won't be wanted after all; possibly that his advice may be wanted in the matter, say of paying Robert's debts, or getting him a passage back to Australia; possibly that his physical assistance may be wanted to get an obstreperous Robert out of the house. Well, he sits there for a moment, and then goes into the library. Suddenly he hears a pistol-shot. For the moment he would hardly realize what it was. He listens. Perhaps,

English authorities have found good use for an instrument of defense which had been discarded as useless after the war.

It is the aerial listener. This consisted of a number of large horns which were directed eastward to catch the whirring sound of hostile airplanes approaching the coast.

The listeners prevented many an air raid on the English coast cities, because they caught the sound of the enemy engines long before the human ear could.

Now these aerial listeners are being used as radio loud speakers. The set shown in the photograph was recently used at a military exhibition at Tolworth, England. Radio messages were sent from airplanes flying above to the field below, where they were magnified by these "listeners."

It wasn't a pistol-shot after all. After a moment or two he goes to the library door again. The profound silence makes him uneasy now. No harm in going into the office just to reassure himself. So he tries the door—and finds it locked!

What are his emotions now? Alarm, uncertainty. Something is happening. Incredible though it seems, it must have been a pistol-shot. He is banging at the door and calling out to Mark, and there is no answer. Alarm—yes. But alarm for whose safety? Mark's, obviously.

Robert is a stranger; Mark is an intimate friend. Robert has written a letter that morning, the letter of a man in a dangerous temper. Robert is the tough customer; Mark the highly civilized gentleman. If there has been a quarrel, it is Robert who has shot Mark. He bangs at the door again.

Of course, to Anthony, coming suddenly upon this scene, Cayley's conduct had seemed rather absurd, but then, just for the moment, Cayley had lost his head. But, as soon as Anthony suggested trying the window, Cayley saw that that was the obvious thing to do. So he leads the way to the windows—the longest way.

Why? To give the murderer time to escape? If he had thought then that Mark was the murderer, perhaps, yes. But he thinks that Robert is the murderer. If he is not hiding anything, he must think so. Indeed he says so, when he sees the body; "It was a coincidence that Mr. Gillingham had turned up just when he did? And Mr. Beverley's curious answers when asked for some account of his friend. An assistant in a tobaccoist's! An odd man, Mr. Gillingham, evidently. It might be as well to keep an eye on him."

CHAPTER VI.
The guests had said goodbye to Cayley, according to their different manner.

Bill had seen them into the car had taken his own farewells (with a special squeeze of the hand for Betty), and had wandered out to join Anthony on his garden seat.

"Well, this is a rum show," said Bill as he sat down.

"Very rum, William."

"And you actually walked right into it?"

"Right into it," said Anthony and proceeded to tell all that he had already told the inspector, Bill interrupting him here and there with appropriate "Good Lords" and whistles.

"I say, it's a bit of a business, isn't it? Where do I come in, exactly?"

Anthony smiled at him.

"Well, there's nothing to worry about, you know. Besides, I need you. Things are going to happen here soon."

(Continued in Our Next Issue)

VAUDEVILLE ARTIST ORDERED TO COURT

CHICAGO, Aug. 3.—(By U. P.)—Emma Carus, vaudeville headliner, was to plead to a charge of disorderly conduct here today.

Miss Carus with J. Walter Leopold, her accompanist, were ordered to appear on the charge following a fight in which Harry Newman was pummeled by Leopold.

According to Miss Carus, the fight occurred over a remark made by Newman.

"When Mr. Newman was being worsted he called to his wife to get his gun," Miss Carus said. "I held her until guests rushed in and stopped the fight."

IOWA MINES MAY OPEN
DES MOINES, Ia., Aug. 3.—Iowa mines will be reopened as soon as the coal operators' policy committee can formulate plans and submit them to operators it was announced today by E. C. Smith, president of the Iowa Coal Operators' association. Operators will ask for military protection.

Record Scholar



Ella Iva Helen Sullivan, graduate of the high school at Amsterdam, N. Y., recently earned 242 credits of a possible 350 in her recent examinations. That's the highest mark ever attained in the state.

Workers in tanneries are generally free from lung troubles.



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